

PATENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT : PAULSEN, Mark W.
SERIAL NO : 10/037,113
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TITLE : COMBINED BALER AND RAKE APPARATUS

Grp./A.U. : 3671
Examiner : PETRA VICK, Meredith C.
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OFFICIAL**DECLARATION OF MARK BOLES UNDER 37 C.F.R. § 1.132****Background.**

1. I, Mark Boles, live at 14524 125th Ave, Grand River, IA 50108. My telephone number is 641-344-8114.
2. I do not know and have never met Mr. Mark W. Paulsen, the inventor of the Combined Baler and Wheel Rake apparatus.
3. I graduated from Graceland College in Lamoni, Iowa, in the early 1980s with a Bachelor's degree in Business Administration.
4. I have been farming for at least 36 years. More specifically, I have been doing custom baling work for at least 32 years including baling of alfalfa hay, corn stalks, fescue grass, bromegrass, sudan grass, and soybean stubble.
5. To become skilled in baling, hands on experience is the best way to learn. Operating the tractor and baler with someone who has experience is the best way to become skilled at it. Learning in a classroom does not teach you how to adjust the equipment to get optimum performance from the baler during varying crop conditions or how to safely operate the baler.

General state of the art in raking and baling.

6. In plant material that is short and fine, wheel rakes pick up the material better than power rakes. In short plant material, power rakes will miss more material than wheel rakes. Wheel rakes are less expensive, only half the cost of power rakes. Wheel rakes knock off fewer leaves from alfalfa plants than do power rakes, which is extremely important because the leaves on alfalfa plants have the most nutritional value for livestock. Therefore, keeping the leaves on the hay is a primary objective when baling hay. However, wheel rakes tend to pick up more rocks than do power rakes. When raking hay, it is important to keep foreign material, such as rocks, out of the hay because rocks damage feed grinders, bale processors, and other equipment that processes hay.
7. Corn stalks are normally used as livestock feed, but there is increasing use of it as a feed additive after it is ground up by feed grinders and bale processors. Recently, corn stalks are also being processed to make paper and as an energy input to generate electricity. Some farmers even use corn stalk bales as windbreaks.
8. If the tractor wheels drive on the plant material, there is a greater likelihood that the leaves will be knocked off.
9. Typically, when a corn field is harvested, the combine harvester cuts the corn plants approximately one foot above the ground.
10. Before today, I have never seen a wheel rake attached to the tongue of a baler. I have never thought about attaching a wheel rake to the tongue of a baler because I normally rake and bale alfalfa hay, not corn stalks. When raking alfalfa hay in Iowa, the hay generally needs time to dry before it gets baled. Therefore, it did not occur to me to place a wheel rake on the frame of a baler because there would not be enough time for the hay to dry. However,

placing the wheel rake on the tongue of the baler, as with Mr. Paulsen's claimed invention, would work well, in my opinion, with corn stalks because they can be raked and baled at the same time. This is because corn stalks are normally dried out in the fall when the corn harvesting is done.

Technical differences between Paulsen's invention and the Lewis and Buck combination.

11. I have examined the Lewis (U.S. Patent No. 5,404,702), Buck (U.S. Patent No. 4,753,063), and Allen (U.S. Patent No. 4,932,197) references and understand the technology described therein.
12. Power rakes cannot be mounted on the same frame as wheel rakes because a power rake frame requires a structure that can carry the rotating bars and which allows the bars to rotate. The frame for a power rake has to be stronger than the frame for a wheel rake in order to carry the rotating bars. Wheel rakes only require a square tube frame to which the wheels can be mounted. A typical wheel rake frame could not support the weight of power rakes, which are heavier. Also, power rakes could not be attached to a wheel rake frame and still allow the power rakes to turn the way they are supposed to.
13. Conversely, mounting wheel rakes onto a power rake frame would not work. Because of the substantially different design of power rake frames, wheel rakes cannot be added to a power rake frame. The wheel rakes could not turn freely without interfering with the power rake frame. There would have to be modification to the power rake frame in order to accommodate wheel rakes.
14. In Buck, I think there would be a problem with the plant material bunching up underneath the tractor because of the low tractor clearance. There would not be enough room underneath the tractor for the plant material to pass smoothly under it.

15. It appears to me that Buck would block my forward visibility from the tractor cab when the rakes are folded up. Buck does not allow the operator to immediately unhook the tractor from the baler and to use the tractor for another farm operation without having the front mounted wheel rakes blocking the operator's visibility.
16. Buck does not suggest how to add the wheel rake to the tongue of the baler without extensive experimentation. The angle of the wheel rakes needs to be correct so that the plant material will smoothly feed into the baler. Also, the length of the tongue of the baler must be compatible with the angle of the wheel rakes so that the rear wheels of the tractor will not hit the wheel rakes if the operator is turning the tractor while the rakes are folded down. Therefore, the wheel rake cannot be added to the tongue of the baler without redesign and experimentation to make sure that the combination works properly.
17. The tractor-wheel rake-baler combination as taught by Mr. Paulsen's claimed invention is more versatile because the operator can immediately switch from raking and baling, unhook the tractor, and use it for a different farm operation such as hauling bales out of the field. Many times, I haul bales out of the field using a spear mounted on the front of the tractor. With Buck's invention, I would have to remove the wheel rake from the front of the tractor before I could use my bale stabber.
18. Mr. Paulsen's tractor-wheel rake-baler saves time, fuel, labor, and compaction to the soil by reducing the number of passes that the tractor has to run through the field. Mr. Paulsen's claimed invention does not require a separate raking operation.
19. Mr. Paulsen's tractor-wheel rake-baler combination would be less expensive and requires substantially less modification to the frame of the baler than the Lewis patent. The length of

the baler tongue in order to accommodate the power rakes on the Lewis patent would cause maneuverability problems in the field.

20. Buck would also require maneuverability problems. Since the rakes are mounted on the front of the tractor, the rakes will not follow the ground. If I approach a sudden dip in the field, the rakes on Buck would gouge into the ground. In Mr. Paulsen's invention, by placing the wheel rake on the tongue of the baler rather than on the front of the tractor, the wheel rake will follow the contour of the ground better because the rake is positioned between the baler wheels and the tractor wheels.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issuing thereon.

Date 8-14-04

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